AF/FW

Attorney's Docket No. 1030681-000649

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of	
Kwang-ki Choi et al.	Group Art Unit: 2828
Application No.: 10/823,653	Examiner: ARMANDO RODRIGUEZ
Filed: April 14, 2004	Appeal No.: _____
For: SEMICONDUCTOR LASER DEVICE	

SUPPLEMENTAL APPEAL BRIEF

Mail Stop APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This Supplemental Appeal Brief is submitted in response to an "Order Returning un-Docketed Appeal to Examiner" dated December 8, 2008, and a Notice of Non-Compliant Appeal Brief ("Notice") dated December 19, 2008. In the Notice, the Office alleges that claim 9 as listed in the Claims Appendix section of the Appeal Brief is inconsistent with the claims as of the final Office Action dated May 11, 2007. In an effort to address the Examiner's concerns, Appellant submits this Supplemental Appeal Brief which includes an updated Claim Appendix. Appellant hereby incorporates by reference the other sections of the Appeal Brief to which no objections were raised.

The $510 Appeal Brief fee was previously submitted with the Appeal Brief on October 25, 2007. However, the Commissioner is hereby authorized to charge any appropriate fees under 37 C.F.R. §§1.16, 1.17, and 1.21 that may be required by this paper, and to credit any overpayment, to Deposit Account No. 02-4800.

Respectfully submitted,

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VIII. CLAIMS APPENDIX

The Appealed Claims

1. (Original) A semiconductor laser device, which includes a multi-semiconductor material layered mesa structure having a laser resonance layer on a substrate and cladding layers formed over and below the resonance layer, comprising:

rounded corners connected to the substrate, in a lower portion of the mesa structure;

a current injection ridge formed on an upper portion of the mesa structure~ and protruding from an upper surface of the mesa structure; and

a passivation layer formed on the mesa structure and having a contact hole exposing an upper surface of the current injection ridge.

2. (Original) The semiconductor laser device of claim 1, wherein the upper and the lower cladding layers are a p-GaN/AlGaN layer and an n-CaN/AlGaN layer, respectively.

3. (Original) The semiconductor laser device of claim 1, wherein the resonance layer includes:

a lower wave guide layer stacked on the lower cladding layer and having a greater refractive index than the lower cladding layer;

an active layer stacked on the lower wave guide layer that generates a laser beam; and

an upper wave guide layer stacked on the active layer.

4. (Original) The semiconductor laser device of claim 3, where the refractive indexes of the upper and the lower wave guide layers are less than the refractive index of the active layer and the upper and lower wave guide layers are CaN based group III-V compound semiconductor layers.

5. (Original) The semiconductor laser device of claim 3, wherein the active layer is a semiconductor layer made of a CaN based group III-V nitride compound expressed as $In_xAl_yGa_{1-x-y}N$ where $0 \leq x \leq 1$, $0 \leq y \leq 1$, and $x+y \leq 1$.

6. (Previously Presented) The semiconductor laser device of claim 3, wherein the ridge is formed on the upper cladding layer, and a second compound semiconductor layer is formed on the current injection ridge.

7. (Original) The semiconductor laser device of claim 6, wherein the second compound semiconductor layer is a p-CaN based group III-V nitride semiconductor layer.

8. (Original) The semiconductor laser device of claim 3, wherein the substrate further includes an n-type electrode on the upper surface, and the substrate is a sapphire substrate having a gallium nitride (GaN) semiconductor material layer or a freestanding CaN substrate.

9. (Original) A semiconductor laser device, which includes a multi-semiconductor material layered mesa structure having a laser resonance layer on a substrate and cladding layers formed above and below the resonance layer, comprising:

rounded corners connected to the substrate, in a lower portion of the mesa structure;

a current injection ridge and force distribution ridges formed on an upper portion of the mesa structure and protruding from an upper surface of the mesa structure; and

a passivation layer formed on the mesa structure and having a contact hole exposing an upper surface of the current injection ridge.

10. (Original) The semiconductor laser device of claim 9, wherein the upper and the lower cladding layers are a p-GaN/AlGaN layer and an n-GaN/AlGaN layer, respectively.

11. (Original) The semiconductor laser device of claim 9, wherein the resonance layer includes:

a lower wave guide layer stacked on the lower cladding layer and having a greater refractive index than the lower cladding layer;

an active layer stacked on the lower wave guide layer that generates a laser beam; and

an upper wave guide layer stacked on the active layer.

12. (Original) The semiconductor laser device of claim 11, where the refractive indexes of the upper and the lower wave guide layers are less than the refractive index of the active layer and the upper and the lower wave guide layers are CaN based group III-V compound semiconductor layers.

13. (Original) The semiconductor laser device of claim 11, wherein the active layer is a semiconductor layer made of a CaN based group III-V nitride compound expressed as $In_xAl_yGa_{1-x-y}N$ where $0 \leq x \leq 1$, $0 \leq y \leq 1$, and $x+y \leq 1$.

14. (Original) The semiconductor laser device of claim 11, wherein the ridges are formed on the upper cladding layer, and a second compound semiconductor layer is formed on the central ridge.

15. (Original) The semiconductor laser device of claim 14, wherein the second compound semiconductor layer is a p-GaN based group III-V nitride semiconductor layer.

16. (Original) The semiconductor laser device of claim 11, wherein the substrate further includes an n-type electrode on the upper surface, and the substrate is a sapphire substrate having a CaN semiconductor material layer or a freestanding CaN substrate.